

REMARKS/DISCUSSION OF ISSUES

By this Amendment, Applicant cancels claims 16-23 without disclaimer of the underlying subject matter or prejudice against future prosecution.

Accordingly, claims 24-28 are pending in the application.

Reexamination and reconsideration are respectfully requested in view of the following the results.

35 U.S.C. § 102 and 103

The Office Action rejects claims 24, 25, 27 and 28 under 35 U.S.C. § 102 over Yamazaki et al. U.S. Patent 6,501,094 ("Yamazaki"); and claim 26 under 35 U.S.C. § 103 over Yamazaki.

Applicant respectfully traverses all of these rejections for at least the following reasons.

Claim 24

Among other things, the TFT of claim 24 includes a gate disposed on a substrate, the gate having side edges inclined towards one another to reach a tip having a radius of a few nanometers.

At the outset, the Office Action states that a tip can be flat or rounded.

Applicant respectfully disagrees. The Office Action cites nothing in support of its proposed "interpretation" of tip. Meanwhile, the American Heritage Dictionary, for example, defines "tip" as "*the end of a pointed or projected object*" (see Appendix A attached hereto). This definition is entirely consistent with the clear meaning of "tip" as defined by usage in the specification. On the other hand, an "interpretation" of "tip" as meaning "flat or rounded" is totally inconsistent with the term as defined in the specification (see, e.g., FIGs. 2-4 and 6 and the accompanying text at page 5, lines 13-14; page 6, lines 9-11 as contrasted with the "*flat top region 15*" of FIG. 5 described at page 8, line 1).

Furthermore, Applicant respectfully submits that Yamazaki does not disclose any gate having side edges inclined towards one another to reach a tip having a

radius of a few nanometers. As explained in the specification, by providing the device with a real tip having a very small radius (in contrast to Yamazaki which has a flat, plateau-like top that the Examiner calls a “tip”) provides a device with short channel length, reduced stray capacitance, and an increased aspect ratio for a display device incorporating the TFT. See, e.g., page 1, lines 18-19; page 2, lines 28-29; page 3, lines 9-14; and page 8, lines 11-13.

The Office Action states that Yamazaki does disclose a gate having side edges inclined towards one another to reach a tip having a radius of a few nanometers.

However, the Office Action fails to cite anything at all in Yamazaki that discloses any tip **having a radius of a few nanometers.**

The undersigned attorney sees nothing in Yamazaki that discloses any tip having a radius of a few nanometers. Indeed, the manufacturing process and device disclosed by Yamazaki do not even remotely suggest any modifications that would produce such a small, true tip, and so this feature could not be obtained by any simple change or “optimization” of process parameters in Yamazaki.

In the event that the Examiner maintains a rejection of claim 24 based on Yamazaki, in order to clarify the record for a possible subsequent appeal to the Board of Patent Appeals, Applicant respectfully requests that the Examiner provide with particularity a citation to anything in Yamazaki that supposedly specifically discloses a gate that has a tip having **a radius of a few nanometers.**

Otherwise, it is respectfully requested that the rejection of claim 24 be withdrawn and the claim be allowed.

Accordingly, for at least this reasons, claim 24 is deemed patentable over Yamazaki.

Claims 25-28

Claims 25-28 depend from claim 24 and are deemed patentable for at least the reason set forth above with respect to claim 24, and for the following additional reasons.

Claim 26

Among other things, in the TFT of channel 26 the channel region has a length of 20-40 nanometers.

Yamazaki does not disclose a TFT having so small of a channel region, nor is Yamazaki suitable for providing such a small channel region because Yamazaki teaches a gate having a flat, plateau-like top that necessarily produces a greater channel length than can be produced by a gate having a tip having a radius of a few nanometers, as in the TFT of claim 26. No amount of experimentation with Yamazaki with its gate having a flat, plateau-like top would ever produce a device with such a small channel region. So, in re Aller, Lacey and Hall is inapplicable to the extent that it even stands for the proposition stated in the Office Action (see Eibel Process Co. v. Minnesota & Ontario Paper Co., 261 U.S. 45, (1923)).

The Office Action also incorrectly states that the specification does not teach the critical nature of the small channel width of claim 26 – a smaller channel length than anything disclosed by Yamazaki. See, e.g., page 1, lines 18-19; page 2, lines 28-29; page 3, lines 9-14; and page 8, lines 11-13 of the present specification..

Accordingly, for at least these additional reasons, Applicant respectfully submits that claim 26 is patentable over Yamazaki.

Claim 27

Among other things, the TFT of channel 27 includes an insulating material disposed between the gate and the substrate.

The Office Action cites insulating material 407 in FIG. 4C of Yamazaki.

However, insulating material 407 in FIG. 4C of Yamazaki is not disposed between the gate and the substrate. The substrate in FIG. 4C of Yamazaki corresponds to the region labeled 401 in FIG. 4A on the same page. The gate in FIG. 4C of Yamazaki corresponds to the two regions labeled 402 and 404 in FIG. 4A on the same page (see also col. 9, lines 54-56 “a gate electrode comprised of a titanium film pattern 402 and an aluminum film pattern 404 is formed on a glass substrate 401”). It is apparent from FIGs. 4A-C that the gate electrode 402/404 is

in direct contact with substrate 401 without anything (and specifically without insulating material 407) being disposed therebetween.

Accordingly, for at least these additional reasons, Applicant respectfully submits that claim 27 is patentable over Yamazaki.

CONCLUSION

In view of the foregoing explanations, Applicant respectfully requests that the Examiner reconsider and reexamine the present application, allow claims 24-28 and pass the application to issue.

In the event that there are any outstanding matters remaining in the present application, the Examiner is invited to contact Kenneth D. Springer (Reg. No. 39,843) at (571) 283.0720 to discuss these matters.

Respectfully submitted,

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The American Heritage® Dictionary of the English Language: Fourth Edition. 2000.

tip¹

PRONUNCIATION: [tip](#)

NOUN: 1. The end of a pointed or projecting object. 2. A piece or an attachment, such as a cap or ferrule, meant to be fitted to the end of something else: *the barbed tip of a harpoon*.

TRANSITIVE VERB: Inflected forms: **tipped**, **tip·ping**, **tips**

VERB: 1. To furnish with a tip. 2. To cover or decorate the tip of: *tip strawberries with chocolate*. 3. To remove the tip of: *tip artichokes*. 4. To dye the ends of (hair or fur) in order to blend or improve appearance.

PHRASAL VERB: **tip in** *Printing* To attach (an insert) in a book by gluing along the binding edge: *tip in a color plate*.

ETYMOLOGY: Middle English.

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